

ABSTRACT

5 **"NOVEL CIRCUIT DESIGNS AND CONTROL
TECHNIQUES FOR HIGH FREQUENCY ELECTRONIC
BALLASTS FOR HIGH INTENSITY DISCHARGE LAMPS"**

10 The present invention provides an electronic ballast for a high intensity discharge
lamp such as a metal halide lamp. The ballast includes an inverter and a resonant circuit with
an ignition capacitor between the resonant circuit and the lamp. The ignition capacitor serves
to provide the necessary start-up energy and also serves to provide a low impedance
discharge path. A single ignition capacitor may be sufficient, but if a long cable is used to
connect the lamp to the ballast, then two ignition capacitors in parallel at opposite ends of the
cable may be used. The ballast further provides means for monitoring and controlling lamp
15 power by monitoring a nominally constant dc link voltage, and means for detecting short-
circuit and open circuit conditions. A retrieval mechanism is provided in the event of the lamp
failing to ignite that includes a temporary disabling of the inverter in order to keep the rms
lamp voltage low.

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